5. A nucleic acid molecule of Claim 4 encoding a secoisolariciresinol dehydrogenase protein from a genus selected from the group consisting of *Virola*, *Piper*, *Arctium*, *Podophyllum* and *Linum*.

6. A nucleic acid molecule of Claim 1 encoding a secoisolariciresinol dehydrogenase protein from a *Forsythia* species.

7. A nucleic acid molecule of Claim 6 encoding a secoisolariciresinol dehydrogenase protein from *Forsythia intermedia*.

8. A nucleic acid molecule of Claim 7 encoding a secoisolariciresinol dehydrogenase protein having the amino acid sequence of any one of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8 and SEQ ID NO:10.

9. A nucleic acid molecule of Claim 7 having the nucleic acid sequence of any one of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9.

10. An isolated nucleic acid molecule that hybridizes to a fragment of any one of the nucleic acid molecules set forth in SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9, or to the antisense complement of any member of the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9 under conditions of 4 X SSC at 35°C, said fragment having a length of at least 15 bases.

18. A replicable expression vector comprising a nucleic acid sequence encoding secoisolariciresinol dehydrogenase that hybridizes to a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9, or to the antisense complement of any member of the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7 and SEQ ID NO:9 under conditions of 4 X SSC at 35°C.

19. A replicable expression vector of Claim 18 comprising a nucleic acid sequence encoding secoisolariciresinol dehydrogenase from a genus selected from the group consisting of

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Podocarpus, *Tsuga*, *Pinus*, *Thuja*, *Araucaria*, *Juniperus*, *Taiwania*, *Virola*, *Piper*, *Arctium*, *Podophyllum* and *Linum*.

20. A replicable expression vector of Claim 18 comprising a nucleic acid sequence encoding secoisolariciresinol dehydrogenase having the biological activity of a protein having the amino acid sequence of any one of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8 and SEQ ID NO:10.

21. A host cell comprising a vector of any one of Claim 18, Claim 19 or Claim 20.

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